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UN/ECE ACTION PLAN TO IMPLEMENT AGENDA 21

UN/ECE CONTRIBUTION TO THE COMMISSION ON SUSTAINABLE DEVELOPMENT, MAY 1994

Prepared by the secretariat *

INTRODUCTION

1. The United Nations Conference on Environment and Development (UNCED) marked a milestone in international cooperation. The recognition at the highest political level that environment and development are not incompatible but two sides of the same coin opens up new opportunities for environment and development policies.

2. In 1989, the Economic Commission for Europe formally adopted sustainable development as a guiding principle for all its relevant activities, thus adding a new dimension to its all-embracing work programme. The Commission also set up an intergovernmental body of a cross-sectoral nature in 1990 to develop an integrated approach to environmental and economic issues and to promote subregional capacity building to this end.

3. The cross-sectoral structure of the UN/ECE, covering such areas as transport, trade, energy, industry and technology, human settlements, agriculture and timber, offers member Governments an effective mechanism to respond to the challenges of environment and development issues and to adapt universal precepts to the specific circumstances prevailing in the region.

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* Pursuant to Commission decision F (48). The Senior Advisers to ECE Governments on Environmental and Water Problems gave their general approval to the action plan on 12 January 1994.

4. The multilateral, legally binding, regulatory instruments on air pollution, water management, environmental impact assessment and industrial accidents negotiated under UN/ECE auspices are part of an expanding regional legal framework to facilitate sustainable development. Environmental impact assessment, in particular, is an effective tool for incorporating environmental considerations into economic decision-making.

5. The United Nations Conference on Environment and Development (UNCED) prepared the ground for the further promotion of sustainable development within UN/ECE. By using the outcome of UNCED, in particular Agenda 21, the Rio Declaration and the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests, the Commission is now in a better position to structure and channel its efforts at regional level through a common frame agreed upon by all UN/ECE member Governments and the international community at large.

6. Equally important was the impetus provided by all UN/ECE member Governments at the 1993 "Environment for Europe" Conference (Lucerne, Switzerland). In their Declaration, Ministers stressed their willingness to cooperate to promote sustainable development, and they entrusted UN/ECE, assisted by the recently established Senior Governmental Officials with the central coordination for the further development of the process "Environment for Europe" and, in particular, the preparations for the next Ministerial Conference tentatively scheduled to be held in Sofia (Bulgaria), in 1995.

7. In the light of recent dramatic changes in Europe, UN/ECE is playing an increasingly important role in providing assistance to countries in transition from centrally planned to market economies, with particular emphasis on building and strengthening their national capacities regarding sustainable development, reviewing their performance in meeting domestic environmental policy objectives and relevant international commitments, and strengthening their environmental management and planning capabilities. Provided the necessary budgetary resources will be given to UN/ECE, an assistance programme will be set up including advisory services, technical cooperation, and training to help the human resources and institutional capacities of countries in the UN/ECE region in particular those in transition to implement sustainable development.

8. Since 1990 the number of UN/ECE member countries has steadily increased from 34 to 54 1/. At the same time the process of integration in western Europe has continued through the European Community. The new European Community Programme of policy and action on the environment and sustainable development, a comprehensive and strategic approach to sustainable development at subregional level, will make a substantive contribution to the follow-up to Agenda 21 by the European Community and its member States.

9. This report has been prepared for submission to the United Nations Commission for Sustainable Development at its second session in May 1994, pursuant to Commission decision F (48) and in conformity with the General Assembly resolution 47/191 of 22 December 1992 on institutional arrangements to follow up UNCED in which the General Assembly requested "United Nations regional commissions to examine the relevant provisions of chapter 38 of Agenda 21 at their next sessions and submit reports on their specific plans to implement Agenda 21".

10. For each of the major regional issues related to Agenda 21, the present document provides information on major activities undertaken under UN/ECE auspices as well as on planned or proposed action to promote sustainable development at regional level. These major issues include: changing production and consumption patterns; integration of environment and development in decision-making; protection of the atmosphere; water resources management; sustainable development of the forest; sustainable agriculture and rural development; environmentally sound management of toxic chemicals; exchange of environmentally sound technology; strengthening the role of major groups and raising public awareness; international legal instruments and mechanisms; and information for decision-making.

CHANGING PRODUCTION AND CONSUMPTION PATTERNS

11. Achieving the goals of sustainable development requires significant changes in production and consumption patterns, particularly in the highly industrialized countries of the UN/ECE region, to optimize the use of resources and minimize waste. In many instances this requires reorienting the prevailing production and consumption patterns which have developed in industrial societies and which, in turn, are emulated by much of the world and, in particular, by countries in transition currently in the process of reshaping their economies.

12. As early as 1979 a Seminar was held jointly with the United Nations Environment Programme (UNEP) on alternative patterns of development and lifestyles, resulting in recommendations to UN/ECE Governments regarding problems and opportunities for long-term compatibility between socio-economic development and improvement in environmental quality and aimed at exploring the extent to which solutions may require changes in prevailing development patterns and lifestyles.

13. The Declaration on Low- and Non-waste Technology and Re-utilization and Recycling of Wastes was adopted in 1979 at ministerial level. It provides a forceful instrument to promote policies and strategies which render production and consumption patterns more environmentally sound and minimize the generation of hazardous wastes. The Declaration gives full recognition to the entire life cycle of products, from the extraction of raw materials to manufacturing, consumption, recycling, reprocessing and disposal. This approach has led to the concept of the cradle-to-grave management of chemicals, residues and wastes. The pioneering role of UN/ECE in this area deserves particular mention.

14. To implement the 1979 Declaration, studies were undertaken on international waste exchanges and integrated waste management, with special emphasis on the minimization of waste generation at source. In order to provide guidance to member countries in formulating and implementing policies on the reduction, replacement, recovery, recycling and re-utilization of industrial products, residues or waste ("five R policies"), a set of policy recommendations to UN/ECE Governments was adopted. A similar set had been adopted with a view to promoting policies and managerial instruments for integrating the concepts of low-waste technology and environmentally sound products.

15. In the industry and energy sectors a broad range of studies was undertaken covering such issues as: the utilization of wastes by the chemical industry; the influence of environmental protection measures on the development of pesticide production and consumption; low- and non-waste technologies in the production of organics; the recycling of used tyres and rubber wastes; the disposal and use of wastes from phosphoric acid and titanium dioxide production; the rational use of water and its treatment in the chemical

industry; substitutes for tripolyphosphates in detergents; the management of plastic wastes; raw material and environmental and pollution control issues in the iron and steel industry; recuperation and economic utilization of by-products in the iron and steel industry; low-waste technologies in engineering industries; the production of engineering equipment for preventing water pollution and more effective energy use in engineering industries; the storage of waste from opencast mining; low-waste technology for coal preparation, briquetting, gasification, liquefaction and combustion; and the utilization of by-products from coal mining and preparation; gas production from biomass, coal by-products, municipal solid waste, industrial waste and household refuse; the treatment, recycling and disposal of waste from thermal power stations as well as the adverse effects of coal deposits on large land surface and water resources.

16. In 1988, UN/ECE adopted the Regional Strategy for Environmental Protection and Rational Use of Natural Resources stating that protection of the environment and rational management of natural resources were integral to economic and social development. The Regional Strategy aimed at the eventual creation of a situation whereby economic activity and social development could proceed in an environment essentially free from: the degrading effects of pollution; the hazards posed by chemicals and wastes to human health; loss of values and opportunities associated with a broad and stable natural-resource base; and disagreements over environmental issues of a transboundary nature.

17. Action:

(a) Develop guidelines for the establishment of environmental product profiles to provide a coordinated and systematic approach to information about the environmental soundness of products, and their sustainable use and disposal and promote eco-labelling;

(b) Promote sustainable consumption patterns;

(c) Analyse the state of the art in waste management in the common waste treatment facilities of industrial parks, including ways of preventing and minimizing waste generation, in particular hazardous waste, and formulate policy recommendations;

(d) Elaborate policy recommendations for the viable recultivation of land surface and the restoration of the ecological balance in opencast mining areas;

(e) Give particular emphasis to the issue of recycling iron and steel scrap, as well as to the significance and influence of such scrap on further developments in the iron and steel industries especially those related to product quality;

(f) Prepare recommendations on low- and non-waste technology for steel making, steel processing and steel waste treatment and management, as well as for the engineering industry, aimed, in particular, at providing guidance to countries in transition;

(g) Analyse the consequences for the forest sector of increased wood recycling and the reduction of waste, and draw up policy recommendations;

(h) Develop guidelines for sustainable human settlements planning and management.

INTEGRATION OF ENVIRONMENT AND DEVELOPMENT IN DECISION-MAKING

18. In many UN/ECE countries, the prevailing decision-making process tends to separate environment and economic development aspects. This separation influences not only the decision-making process, but also the action of all groups, including Governments, industry, business and individuals. The decision-making process should be reshaped in particular by adjusting the national legal and administrative framework.

19. In 1990, the Government of Norway, in cooperation with the UN/ECE, organized a Regional Conference in Bergen with the triple purpose of reviewing progress in the follow-up of selected aspects of the report of the World Commission on Environment and Development, identifying initiatives for further measures of relevance to the UN/ECE region, and providing a major contribution of the UN/ECE region to UNCED. A Ministerial Declaration adopted at the Conference included a variety of measures and recommendations related to the common challenge faced by UN/ECE member countries and to the four specific themes of the Conference: heightened awareness and public participation; sustainable industrial activity; sustainable energy use; and the economics of sustainability.

20. As a follow-up to the Bergen Conference, the UN/ECE set up an intergovernmental Working Group on Environment and Economics, under the joint auspices of the UN/ECE Senior Advisers on Environmental and Water Problems and the Senior Economic Advisers, in 1990. The Joint Working Group investigates the macroeconomic implications of environmental policies, the costing and funding of environmental policies within the context of competing priorities, with special reference to the needs of countries in transition to market economies, the impact of the structural changes in these countries on the environment, and it promotes regional cooperation in the use of market mechanisms and economic instruments together with other relevant managerial tools as well as legal and regulatory instruments in cooperation with the Organisation for Economic Co-operation and Development (OECD).

21. The 1991 Convention on Environmental Impact Assessment in a Transboundary Context provides an efficient international legally binding instrument to prevent, reduce or control any potentially harmful transboundary environmental impact of proposed activities at an early planning stage, to integrate environmental and sectoral policy considerations into decision-making processes at the international level, and to promote the preventive and precautionary principles and sustainable development. It codifies the general obligation of States to notify and consult each other on all major projects under consideration that are likely to cause a significant adverse environmental impact across boundaries, ranging from nuclear power stations to oil refineries, ports, integrated chemical installations, steel mills and major road construction.

22. Through a joint project, UN/ECE and UNEP have provided assistance to countries in transition for the integration of environmental considerations in planning and decision-making in the economic reform process.

23. In 1992 a study on trade and environment analysed the impact of environmental policies on international competition and the influence of trade policies on environmental measures. It also contained suggestions for further work.

24. Action:

(a) Regularly review the current situation, problems and obstacles encountered by countries in transition in the field of environment and economics so as to elaborate policy guidelines for these countries;

(b) Investigate ways and means of raising adequate funding for environmental policy and the possibility and adequacy of creating specific environmental funds and/or ecobanks at national levels as well as financing possibilities at the international level such as debt-for-nature swaps, new schemes for fund-raising and voluntary contributions through private channels;

(c) Study the links between the setting of environmental policy objectives, in particular environmental quality standards, and the use of economic instruments in countries in transition; and determine ways to implement environmental charges in specific sectors; systematically exchange information on the level of charges used in UN/ECE countries to deal with pollution problems in various sectors and on difficulties encountered in that respect;

(d) Strengthen the capabilities of future Parties to the 1991 Convention on Environmental Impact Assessment (EIA) in a Transboundary Context, particularly countries in transition, to comply with the obligations under this Convention by organizing a series of workshops on key EIA issues and establishing a methodological centre of expertise in the field of EIA in a transboundary context;

(e) Assess interactions between environmental policies and trade issues and opportunities for promoting sustainable development through trade liberalization (open, non-discriminatory and equitable trading systems), expanding trade to the benefit of all UN/ECE countries, taking into account environmental considerations, and striving for consensus-building at the intersection of the environmental and trade areas;

(f) Promote, in the area of trade-related environmental issues, direct foreign investment and trade in environmentally sound technologies and equipment in the countries in transition, and analyse the implications of environmental conventions, declarations and recommendations for intraregional trade;

(g) Gradually expand the OECD system of national environmental performance review to UN/ECE countries non-members of OECD to promote the integration of environmental and sectoral policies, the achievement of environmental improvements, and the strengthening of national capabilities for environmental management and policy evaluations.

PROTECTION OF THE ATMOSPHERE

25. In terms of global emissions, 70% of sulphur dioxide, 60% of nitrogen oxides and more than 80% of total chlorofluorocarbons are released in UN/ECE countries. This has placed a heavy responsibility on those countries for the protection of the atmosphere.

26. The 1979 Convention on Long-range Transboundary Air Pollution was the first international legally binding instrument to deal with the problems of air pollution on a broad regional basis. It has been ratified by thirty-six Governments and the European Community and entered into force in March 1983.

27. The 1985 Protocol on the Reduction of Sulphur Emissions or their Transboundary Fluxes by at least 30% has been ratified by twenty-one Parties to the Convention. It is an internationally binding agreement to reduce sulphur emissions, or their transboundary fluxes, by at least 30% as soon as possible (or by 1993 at the latest), using 1980 levels as the basis for calculating the reductions, and it has already made an impact on overall sulphur emissions. Taken as a whole, the twenty-one Parties to the Protocol reached the 30% reduction target by 1990. In Europe as a whole, including non-parties to the Protocol, the sum of emissions is just above 70% compared to 1980 and thus close to the 30% target. Nine Parties reduced sulphur emissions by 50% or more.

28. The 1988 Protocol concerning the Control of Emissions of Nitrogen Oxides or their Transboundary Fluxes, ratified by twenty-two Parties to the Convention, required the Parties, as a first step, to freeze emissions of nitrogen oxides or their transboundary fluxes. In Europe overall emissions of NO_x had by 1990 been stabilized at the 1987 level. Among the Parties that have not stabilized emissions, only four have increased emissions by more than 10% with respect to the 1987 level.

29. The 1991 Protocol concerning the Control of Emissions of Volatile Organic Compounds or their Transboundary Fluxes signed by twenty-three Parties and so far ratified by two Parties was intended as a key instrument for the reduction of the formation of photo-oxidants, together with the NO_x Protocol.

30. The Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (EMEP) was established in 1977. It is financed under the 1984 Protocol to the Convention, which has thirty-five Parties. It has three main elements: collection of emission data; measurement of air and precipitation quality; and modelling of atmospheric dispersion, using emission data, meteorological data, and functions describing the transformation and removal processes in the atmosphere. Data on annual national emissions of sulphur dioxide, nitrogen oxides, ammonia, volatile organic compounds and some other pollutants are collected and published regularly. The monitoring part of EMEP consists of over 100 national measuring stations in 33 countries which are operated by the participating countries and fully coordinated by three international EMEP centres. The models employed provide calculated concentration and deposition distributions and trends for major air pollutants over Europe and the surrounding sea areas and country-to-country budgets of airborne acidifying components.

31. Five International Cooperative Programmes for Assessment and Monitoring of Air Pollution Effects have been set up. These programmes collect and evaluate data from Europe and North America concerning air pollution effects on forests, fresh waters, materials (including cultural and historic monuments), agricultural crops and on selected ecosystems. A programme for mapping critical levels and loads has also been established. The effect-related programmes form a scientific basis for the continuous review of the impact of air pollutants on the environment and of the results of measures undertaken to reduce emissions.

32. The UN/ECE-wide campaign "Energy Efficiency 2000" was launched in 1991. The work is carried out in accordance with the provisions of the project plan. The main aim of the project is to enhance trade and cooperation between participating States in energy efficient technologies used in an environmentally sound way and to improve management practices. In order to achieve this objective, the project is designed to produce the following results: increased contacts between businessmen, trade officials, bankers, government officials, national and urban energy conservation programme managers, and engineers; listing of individuals in relevant enterprises, banks and government offices; an information exchange on legal instruments, grants, subsidies, loan schemes, energy labelling and technical standards; a listing of

technologies, products and services for energy efficiency, environmental pollution abatement and control particularly relevant to UN/ECE member States whose economy is in transition and those developing from an economic point of view; Energy Efficiency Demonstration Zones; analyses to identify key energy efficient technologies and management practices to determine their potential impact on energy savings and environmental quality in UN/ECE economies in transition and development.

33. Symposia have been held on the long-term impact of energy efficiency improvements, the optimum use of primary energy resources in final heat consumption, and on the rational use of electricity. A number of projects have been implemented in the coal and electricity sector to mitigate air pollution from stationary energy sources which are major polluters responsible for SO_2 and NO_x emissions. In this context a new programme has been set up on clean coal technologies.

34. A number of recommendations have been adopted concerning regulations and fuel consumption and safety requirements related to the use of liquefied petroleum gas as an alternative fuel.

35. Action:

(a) Finalize a protocol for the further reduction of sulphur emissions after 1993;

(b) Negotiate reductions in national emissions of nitrogen oxides, heavy metals and volatile organic compounds (VOCs);

(c) Substantiate information on emissions, transport, effects and abatement options concerning persistent organic pollutants and heavy metals, as a basis for the elaboration of possible protocols;

(d) Extend the network and further develop the monitoring under EMEP;

(e) Determine critical levels and loads of pollutants with particular attention to the direct effects of air concentrations of SO_2, NO_x and O_3 and the indirect effects of the long-term deposition of sulphur and nitrogen compounds;

(f) Prepare a guidebook on emission inventory together with the Commission of the European Communities (CORINAIR) on the basis of improved data and harmonized methods;

(g) Substantially contribute to the preparation of the European Energy Charter, in particular its Protocol on Energy Efficiency and Environmental Aspects;

(h) Expand, pursuant to the Lucerne Ministerial Declaration, the scope of the Energy Efficiency 2000 campaign to emphasize the role of energy efficiency measures and renewable energy sources in reducing greenhouse gases and acidifying substance emissions;

(i) Create energy efficiency demonstration zones to stimulate enterprises and initiatives in market approaches to energy efficiency and replicate successful measures nationally once proven on a limited scale;

(j) Provide assistance to countries in transition to develop policies, programmes and long-term strategies on retrofitting existing fossil-fired thermal power stations and on the installation of environmentally sound power plants in order to prevent, reduce and control the emission of pollutants;

(k) Develop policies and programmes to mitigate methane emissions from coal mining in an effort to reduce the greenhouse effect;

(l) Elaborate sustainable energy development strategies aimed at securing the reliable, rational and environmentally sound end-use of energy in member countries, covering the electric power, coal and gas industry;

(m) Promote energy-labelling systems and voluntary agreements or mandatory standards, as may be appropriate, for products and processes aiming for energy efficient buildings and appliances;

(n) Prepare a manual on the use of compressed natural gas and liquefied petroleum gas as motor-vehicle fuels with a view to diminishing greenhouse gas emissions;

(o) Finalize the feasibility study regarding the organization of a regional conference on transport and environment in 1996.

WATER RESOURCES MANAGEMENT

36. Rapid industrial development and changing agricultural practices have increased the demand for fresh water and, concomitantly, the pollution of surface and groundwater in the UN/ECE region, including transboundary waters. The UN/ECE work in the field of water management has evolved in line with the changing needs and priorities in the region. It has focused on the elaboration of comprehensive policy instruments and strategies on integrated water management both of surface-water and groundwater resources in terms of water quality and quantity, and has resulted in policy declarations and recommendations, particularly on planning and rational use of water resources; economic instruments; water management in the industrial and agricultural sectors; drinking-water supply, effluent disposal systems and waste-water treatment; ecosystems-based water management; water-quality criteria and objectives; and groundwater management.

37. Since the late seventies particular attention has been given to furthering the prevention and control of transboundary water pollution. Intensive negotiations led to policy decisions regarding Cooperation in the field of Transboundary Waters and the Code of Conduct on Accidental Pollution of Transboundary Inland Waters and culminated in the adoption of the Convention on the Protection and Use of Transboundary Watercourses and International Lakes in 1992.

38. The Convention promotes the strengthening of national and international measures for the protection and ecologically sound management of transboundary waters, both surface waters and groundwaters; including the reduction of pollution, particularly by hazardous substances, of waters from point and diffuse sources. The precautionary principle and the polluter pays principle are recognized as guiding principles in the implementation of such measures, together with the requirement that water management should meet the needs of the present generation without compromising the ability of future generations to meet their own needs. The Convention is also intended to promote the elaboration of

bilateral and multilateral agreements between countries riparian to the same transboundary waters and to increase their effectiveness.

39. Comprehensive guidelines have been adopted for the practical application of the ecosystem approach to day-to-day water management. This approach - a holistic way of viewing, planning and managing all ecosystems components, and promoting the sustainability of these components and the environment as a whole - forms a framework for devising integrated strategies oriented to the ecosystems, which encompass the rational use of water; the prevention, control and reduction of water pollution; the conservation of biotic communities and aesthetic qualities; the protection of natural habitats on shores, marshes and wetlands; and for enhancing the health and welfare for catchment areas residents.

40. Work undertaken on sectoral aspects of water management comprises, inter alia, studies on the rational use of water and its treatment in the chemical industry; treatment of water from opencast mines; methods for purifying waste water from thermal power stations; the state of the art and new developments in membrane technology applied to the chemical and other industries, including waste-water treatment; economic instruments for the rational use of water in irrigation; improved irrigation practices to preserve water resources and increase crop yields; and on the elaboration of a draft standard classification of water quality. Information on technical and regulatory measures applied to opencast coal-mining operations, coking plants and power stations was analysed in order to prevent pollution of surface and groundwater.

41. Action:

(a) Draw up policy recommendations for the setting of limit values for discharges of pollutants;

(b) Develop guidelines on the prevention and control of water pollution from diffuse sources, including fertilizers and pesticides and run-off from urban and industrial areas and transport activities;

(c) Draw up a list of hazardous substances and industrial sectors from which these substances derive, and prepare recommendations on the application of these lists which will lay the foundation for an eventual protocol for the Convention on the Protection and Use of Transboundary Watercourses and International Lakes;

(d) Prepare guidelines for monitoring and assessing the conditions of transboundary waters in the region, as the basis for the elaboration of a protocol to the Convention on the harmonization of monitoring systems;

(e) Update the List of Bilateral and Multilateral Agreements and other Arrangements in Europe and North America on the Protection and Use of Transboundary Waters;

(f) Assist, at the request of riparian countries, in adapting existing agreements to the obligations set out in the Convention and in elaborating new agreements;

(g) Develop an integrated approach to demand management, water allocation instruments, including licensing, minimum acceptable water flow and the pricing of water.

SUSTAINABLE DEVELOPMENT OF THE FOREST

42. Concern about the threats to temperate zone forests from airborne pollution and forest fires, along with the realization that sectors other than timber need to be managed sustainably, notably through the conservation of biodiversity and the provision of recreation and soil protection, have brought sustainable development of the forest and forest products sector high on the political agenda of UN/ECE, which has been carrying out work to analyse and monitor sustainability in the forest sector since at least the 1950s. In 1993, the Ministerial Conference on the Protection of Forests in Europe was held in Helsinki to implement the relevant provisions of the UNCED outcome at regional level. This Conference approved general guidelines for the sustainable management of forests in Europe and for the conservation of biodiversity of European forests, as well as resolutions on assistance to the forest sector of countries in transition and on climate change. The UN/ECE decided to carry out a comprehensive review of its programme in the light of the results of the Rio and Helsinki Conferences.

43. The long-term trends in the European forest resource, demand for forest products, and the forest's ability to supply the volume of wood required have been analysed every 10 years since 1953 by UN/ECE together with the Food and Agriculture Organization (FAO). These studies of the outlook for the forest products sector have enabled Governments to make the necessary policy decisions to ensure the sustainability of their national forests and forest products sector taking into account that the forest and the wood-consuming sectors are closely intertwined and that sustainability is seen in its social and economic aspect as well as from the ecological side.

44. The UN/ECE, in close cooperation with FAO, has built up a comprehensive information base to assess the situation as regards sustainability. Periodic forest resource assessments have been carried out, covering not only the area, ownership and management status and wood-related parameters (growing stock, increment), but increasingly, despite the methodological difficulties, the other functions of the forest. The most recent assessment was published in 1993. It shows that in the ECE region felling is below, usually well below, annual increment, which is itself rising with more intensive silviculture. This is leading to an accumulation of growing stock. The assessment confirms that wood production is of "high importance" on a greater area than the other uses for forest land (environment protection, water supply, grazing, hunting, nature conservation, recreation) but that the latter are increasing in relative importance.

45. Threats to the forest have been monitored, the forest condition has been assessed (large-scale assessments, and permanent sample plots), and information on forest fires collected and disseminated. Information on the production and trade of wood and forest products is published on a regular basis and in some detail, providing the data infrastructure necessary for the analysis of trends. All the above activities are accompanied by a constant effort to improve the quality of the information base, notably by improving the comparability and comprehensiveness of the data received.

46. UN/ECE has undertaken activities to collect information, analyse the outlook and prepare recommendations on a number of important issues which will influence the long-term sustainability of the sector: the effects of recycling, notably of waste paper, on the sector; the productivity of forest industries (which, as major outlets for wood, strongly influence the potential to carry out sustainable forest management); the use of wood for energy (still the major outlet for wood in volume terms), including the potential for replacing fossil fuels; problems for sustainable forest management arising from radiation contamination (about 7 million ha are severely contaminated and forests are a major "sink" for radioactive

isotopes from the Chernobyl disaster); forest technology management and training, i.e. the practical application of the principles of sustainable forest management (forest fire prevention and control, forest planning, use of information systems, prevention of soil compaction by heavy harvesting equipment, reacting to sudden and severe forest damage, etc.).

47. Action: 2/

(a) Review the forestry and timber programme in the light of UNCED, in particular the Non-legally Binding Authoritative Statement of Principles for a Global Consensus on the Management, Conservation and Sustainable Development of All Types of Forests and the Helsinki Ministerial Conference;

(b) Cooperate with the co-chairing countries in monitoring and coordinating the follow-up to the Helsinki Conference and the implementation of the resolutions on sustainable forest management, on the conservation of biodiversity, on assistance to the forest sector of countries in transition, and on climate change;

(c) Monitor and analyse long-term structural trends for wood supply and demand from the point of view of sustainable development, and regularly publish studies;

(d) Carry out a study on the outlook for the supply and demand for the non-wood goods and services of the forest (biodiversity, recreation, protection, landscape, etc.);

(e) Assess the temperate and boreal forest resources as part of the global forest resource assessment on the basis of methodological work undertaken to strengthen the assessment of the capacity of the forest to sustainably supply the full range of goods and services, including environmental benefits;

(f) Draw up a code of practice for multiple-use forestry;

(g) Examine the threat to long-term productivity and stability of forest sites posed by the use of heavy machines;

(h) Collect and disseminate information and experience and prepare recommendations on forest fire prevention and control, emphasizing the social and ecological aspects;

(i) Examine the long-term consequences for the sector of increased recycling and use of waste paper;

(j) Assist countries in managing in a sustainable manner forests contaminated by radiation.

SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT

48. In a number of UN/ECE countries, in particular those in transition, there is no coherent national policy framework for sustainable agricultural development. In 1991, in cooperation with FAO, the joint FAO/ECE Working Party on Relations between Agriculture and the Environment was established to address issues linking environment and agriculture and promote sustainable development.

49. Activities of a technical, economic, or legal character were undertaken on the efficient use of natural resources and environmental protection Symposia were held jointly with FAO on soil and water issues such as: methods and concepts for the use of fertilizers aimed at maintaining soil fertility; minimizing the negative effects on the environment, and ensuring high-quality agricultural products; as well as improved irrigation practices to preserve and protect water resources. The new technologies to reduce the application of chemical substances in agriculture, as well as the role of mechanization in soil conservation, were examined.

50. In various symposia addressing broader themes, environmental aspects were considered as a major component: e.g. symposia on the use of agricultural land for non-food purposes, and on the product quality in the agri-food sector. The legislation and measures for solving environmental problems resulting from agricultural practices (with emphasis on soil, air and water), their economic consequences and impact on agrarian structure have also been studied.

51. Action: 2/

(a) Exchange information and experience and elaborate recommendations, regulations and guidelines for countries, in particular those in transition, where coherent national policy frameworks for sustainable agricultural development are lacking;

(b) Review the economic and structural effects of changing the intensity of agricultural activity, as well as the impact of environmental factors, including pollution from industries and other human activities, on the quantity and quality of agricultural productions, taking into account economic, regulatory and institutional aspects;

(c) Set up a database and prepare regional guidelines on the basis of national surveys of the current measures, recommendations, guidelines and codes, related to economic, legal, technological and regulatory measures for the promotion of environmentally sustainable agriculture and the production of healthy food;

(d) Promote best environmental practices for the reduction of inputs of nutrients and hazardous substances from diffuse sources;

(e) Prepare an in-depth study of the economic and social effects of radioactive contaminations on agriculture and rural areas as follow-up activities to the Chernobyl accident.

ENVIRONMENTALLY SOUND MANAGEMENT OF TOXIC CHEMICALS

52. The use of chemicals is essential to meet the needs of economic development. However, much remains to be done to ensure the environmentally sound management of toxic chemicals. The High-level Meeting on Cooperation and Sustainable Development in the Chemical Industry was organized within the framework of the UN/ECE in 1992, in cooperation with the European Chemical Industry Council and with the support of the Commission of the European Communities. The Meeting suggested strategies for the

sustainable development of the chemical industry in the UN/ECE region. The conclusions of the High-level Meeting were submitted as a regional contribution to the United Nations Conference on Environment and Development. The UN/ECE will participate in the International Conference on Chemical Safety (Stockholm, 25-29 April 1994).

53. The UN/ECE, in cooperation with OECD, has taken steps to extend systems and practices of safe handling of chemicals, established by OECD for its member countries, to the UN/ECE region as a whole. To this end, a set of comprehensive recommendations was adopted on regional cooperation for the management of hazardous substances and for a step-by-step approach to the application of Good Laboratory Practice Principles and compliance monitoring procedures with a view to facilitating their implementation, in particular by countries in transition.

54. The UN/ECE has promoted legally binding instruments related to the international carriage of dangerous goods by road, rail and inland waterways, in order to ensure safe and environmentally sound conditions of transport of chemicals without impeding their movement in international trade. The UN/ECE is, in particular, responsible for the development and updating of existing international instruments and provisions: the European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR); the European provisions concerning the international carriage of dangerous goods by inland waterway (ADN); and, on behalf of the United Nations Economic and Social Council (ECOSOC), recommendations covering the basic requirements for worldwide transport of these goods by all modes.

55. The Convention on the Transboundary Effects of Industrial Accidents was adopted in 1992 (a) to promote active, direct and action-oriented cooperation among countries at regional level before, during and after industrial accidents capable of causing transboundary effects; (b) to foster international cooperation concerning mutual assistance, research and development, exchange of information and exchange of technology in that area; and (c) to promote not only the principles of good-neighbourliness, reciprocity, non-discrimination and good-faith, but also public participation, prevention, environmentally sound sustainable development, environmental impact assessment, immediate notification, peaceful resolution of environmental disputes, and the recognition of the polluter-pays principle as a general principle of international law.

56. Action:

(a) Assist countries, within the framework of the programme on Chemical Industry - Sustainable Economic and Ecological Development (CHEMISEED), in the environmental clean-up of selected chemical production sites in central and eastern Europe;

(b) Undertake a comprehensive study on the chemical legislation in UN/ECE member countries in cooperation with the European Community;

(c) Provide advice and assistance to improve the environmental management as well as the safety and quality performance of chemical producers in central and eastern Europe;

(d) Review progress made in the implementation of relevant decisions and recommendations on regional cooperation for the management of hazardous substances and identify the needs of countries in transition in meeting those recommendations;

(e) Further develop under the international instruments regarding the carriage of dangerous goods, harmonized provisions for the identification, labelling and packaging of chemicals and dangerous goods, including hazardous wastes, and their conditions of transport, including shipping documentation, as well as specific provisions for the construction and equipment of the means of transport and their operation;

(f) Strengthen the ability of future Parties to the 1992 Convention on the Transboundary Effects of Industrial Accidents including countries in transition to prevent, prepare for and respond to industrial accidents and to this end to establish an assistance programme for those countries and set up a systematic funding mechanism for the implementation of this programme;

(g) Set up international networks of centres and mechanisms dealing with industrial accidents, training and exercises to provide for capacity building as well as points of contact for the purposes of notification and mutual assistance in the case of an industrial accident or immediate threat thereof.

EXCHANGE OF ENVIRONMENTALLY SOUND TECHNOLOGY

57. Environmentally sound technologies are a key element for the protection of the environment as they are less polluting, use resources in a more sustainable manner and recycle more of their by-products, residues and waste than the technologies for which they were substitutes.

58. A manual on energy-efficient technologies has been prepared with entries from 16 eastern and western European countries in five energy-consuming sectors. This work was organized in close collaboration with the United Nations Industrial Development Organization (UNIDO) regional programme on industrial energy conservation, which disseminates the results to developing countries.

59. Considerable attention has been given to new and renewable sources of energy (NRSE) with a view to accelerating their use to save non-renewable energy sources and secure energy supplies for future generations. Seminars on cooperative technological forecasting in the field of solar energy; on technologies related to new sources of energy, including solar, wind and geothermal energy; on the utilization of geothermal energy for electricity production and heating; and on the status and prospects of new and renewable sources of energy in the UN/ECE region have been held. The topics discussed included: NRSE in national energy policies and energy balances; the usefulness and competitiveness of NRSE; national research and development, and international cooperation, including East-West cooperation in the field of NRSE.

60. A mechanism was established to exchange information on non-polluting techniques in thermal power stations, their technological effectiveness, economic aspects, experience gained in measuring and monitoring the ecological effects of power stations, and on the implications of climatic changes from CO_2 emissions for electricity demand and supply. Information and experience on gas conservation measures, the use of gas heat pumps, the efficiency of gas-utilizing appliances, the use of gas as motor-vehicle fuel, the gasification of solid fuels, and the rational use of energy resources were also exchanged. Symposia have been held on new coal technologies and refurbishing fossil-fired power stations in central and eastern European countries and on clean, low-grade solid fuel utilization. A study is being finalized on "measures to increase efficiency and improve the operations of gas pipeline systems in eastern and central Europe" to determine the extent to which safety and ecological factors (reduction of methane emissions to the atmosphere, etc.) could be improved.

61. Action:

(a) Evaluate progress in the application of control technologies for acidic pollutants (SO_2, NO_x and NH_3) and VOCs and review the state-of-the-art technology for heavy metals and persistent organic pollutants for the purpose of future emission reduction agreements;

(b) Develop a programme to assist countries in transition to apply clean coal technology to the electricity generating sector;

(c) Establish an incentive programme to promote the development and application of small-scale clean combustion technology to the household and farming sectors;

(d) Elaborate procedures to create more favourable conditions for the exchange of technology for the prevention of, preparedness for and response to industrial accidents and their environmental effects;

(e) Study the complex utilization of raw materials in the chemical industry using advanced environmentally sound processing technology and prepare recommendations to this effect;

(f) Examine the feasibility for setting up a programme of new and renewable energy sources;

(g) Disseminate information on incentive systems available in member countries for the use of renewable energy, promote their inclusion into national energy policies and strategies and assist countries in transition to benefit from equipment and technologies developed in the field of new and renewable sources of energy;

(h) Exchange information on successful applications of renewable energy sources with particular focus on solar thermal, solar photovoltaic and hybrid systems with renewable energy contents for the generation of electricity, and develop a solar power action programme for countries in central and eastern Europe, as well as in the Mediterranean and Black Sea region;

(i) Promote the exchange of environmentally sound technology and know-how in the steel industry;

(j) Regularly update an inventory of existing safety guidelines in biotechnology, including existing laws and regulations and national experiences gained in this field.

STRENGTHENING THE ROLE OF MAJOR GROUPS AND RAISING PUBLIC AWARENESS

62. Effectively implementing the objectives, policies and mechanisms for sustainable development agreed to by Governments requires the commitment and genuine involvement of all social groups. More specifically, one of the fundamental prerequisites for the achievement of sustainable development is broad public participation in decision-making. The promotion of this involvement has taken two forms, namely the participation of representatives of major groups in UN/ECE meetings and the promotion of their participation in the decision-making process in the context of the implementation of legally binding instruments.

63. Major non-governmental groups were involved in the preparation and convening of the 1990 Bergen Regional Conference. The Conference was preceded by four preparatory workshops on: awareness raising and public participation; sustainable industrial activity; sustainable energy use; and the economics of sustainability. Multidisciplinary delegations from UN/ECE member countries participated in the Conference together with representatives of non-governmental groups, including voluntary organizations. Industry, science and trade unions and youth actively participated in the elaboration of the Joint Agenda for Action in which a number of policy and action-oriented proposals were identified.

64. In the context of the legally binding instruments prepared under the auspices of the UN/ECE, detailed provisions have been made for public involvement in environmental decision-making both at national and transboundary levels. In accordance with the Convention on Environmental Impact Assessment (EIA), for example, Parties will be obliged to establish an EIA procedure that permits public participation. Parties to the Convention on the Protection and Use of Transboundary Watercourses and International Lakes will be obliged to ensure public access to the information on water-quality objectives, permit conditions, the results of monitoring and assessment, and on the results of checking compliance with water-quality objectives or permit conditions. Parties to the Convention on the Transboundary Effects of Industrial Accidents will have to ensure that the public in the areas that may be affected by an industrial accident are given the information specified in the Convention. This applies not only to the public of the country in which the activity takes place, but also to the public of other countries likely to be affected. These provisions will serve as possible models in the further elaboration of international environmental laws.

65. Action:

(a) Develop and further strengthen the legal and administrative measures for the practical application of public participation provisions contained in UN/ECE legally binding instruments;

(b) Examine the issue of environmental rights and obligations in the light of the outcome of the 1992 United Nations Conference on Environment and Development and review in this context the experience of member countries regarding the application of Principle 10 of the Rio Declaration on Environment and Development on public participation, and identify areas for possible cooperative action;

(c) Establish a forum comprising representatives of Governments, business and industry for promoting the dialogue leading towards sustainable development;

(d) Involve private sector organizations in the UN/ECE work in the light of the Lucerne Ministerial Declaration;

(e) Assist countries in promoting public participation in decision-making regarding sustainable development in the restructuring and privatization of large State enterprises in central and eastern Europe, in particular in the steel and engineering industries and in the electric power sector, and in the structural and ownership changes in the chemical and steel industries of the countries of central and eastern Europe.

(f) Promote the principles of decentralized governance and participatory democracy at national level by involving local communities, municipalities and provinces and, above all, major population groups, particularly women.

INTERNATIONAL LEGAL INSTRUMENTS AND MECHANISMS

66. In the last 15 years, ten international legally binding instruments have been developed in the UN/ECE on air pollution, environmental impact assessment, the transport of dangerous goods, industrial accidents and transboundary waters. The importance of these legal instruments as effective tools to promote active, direct and action-oriented international cooperation at the regional level has grown in view of the increasing UN/ECE membership and, hence, the growing potential for transboundary environmental problems. These conventions are concrete and effective instruments to eliminate the former dividing line between east and west and to integrate countries with economies in transition into a pan-European legal and economic space.

67. Action:

(a) Promote steps by Governments to ratify or adhere to these instruments and to provide support to countries in transition not only in their national efforts to implement international agreements, but also in their effective cooperative activities under the conventions and in the negotiation of new agreements;

(b) Assist countries in building the necessary administrative and legal structures, including enforcement and implementation mechanisms, inter alia, by initiating or pursuing the elaboration of guidelines, assisting where requested with the drafting of legislation, providing for the exchange of legal and technical experts, and by encouraging the voluntary dissemination of relevant information on implementation;

(c) Assist countries in their efforts for effective monitoring as well as improving the implementation of and compliance with international legal instruments in the field of environment;

(d) Develop guidelines on non-compliance for the Parties to environmental conventions in the UN/ECE region;

(e) Develop a concept of responsibility and liability for adverse environmental effects beyond national jurisdiction;

(f) Develop in the area of avoidance and settlement of disputes, methods to broaden and make more effective the range of techniques available at present, taking into account, among others, relevant experience under existing international agreements, instruments or institutions and their implementing mechanisms such as modalities for dispute avoidance and settlement.

INFORMATION FOR DECISION-MAKING

68. While considerable data exists, the gap in the availability, quality, coherence, standardization and accessibility of data between UN/ECE countries has widened, seriously impairing the capacities of countries to make informed decisions concerning environment and development. The UN/ECE started considering its involvement in the development of environment statistics twenty years ago. A series of statistical classifications in the most prominent fields of environmental preoccupations was adopted. The publication of the experimental compendium in August 1987 constituted the conclusion of a complete cycle, leading to the development of an International Environmental Data Service (IEDS). Work continued on statistical

classifications and methodologies. It has resulted in the recent publication of a volume "Reading in International Environment Statistics".

69. The central part of IEDS is a computerized database, which uses the statistical classifications developed, and is continually updated. The publication of UN/ECE compendiums of environment statistics is to be seen as one of the IEDS outputs. The services of IEDS are notably also made available as part of UN/ECE's cooperation with the European Community in the preparation of the pan-European state-of-the-environment report "Europe's Environment 1993". In the meantime, a user's guide to the database has been issued.

70. Seminars on international standards for environmental protection and energy efficiency have been held to identify lacunae in international standardization in these areas, promote work to this end and prevent the creation of new barriers to trade.

71. Action:

(a) Define minimum statistical requirements for international environmental studies and develop regional standard classifications for use in environment statistics;

(b) Prepare a joint ECE/EUROSTAT/OECD/WHO-EURO compendium for environment statistics to accompany the pan-European state-of-the-environment report;

(c) Prepare a statistical monograph on the implications of road transport for the environment;

(d) Maintain and further develop IEDS;

(e) Undertake a pilot study on a conceptual framework for physical environmental accounting on the basis of research into conceptual questions of patrimony or resource accounting;

(f) Elaborate a standard statistical classification of ecological marine water quality and a standard statistical classification of discharges of water pollutants or of all stresses on aquatic ecosystems, as well as concepts, definitions and related statistical tools required for water management;

(g) Develop, in cooperation with Eurostat, a single international statistical classification of wastes and conceptual and methodological tools for enhancing statistics on waste and recycling, including their international comparability;

(h) Develop the basic components for a system of agricultural statistics and agricultural accounts, in the context of a joint ECE/FAO/OECD/EUROSTAT programme for assistance to transition countries;

(i) Develop statistical concepts, definitions and nomenclatures needed in other areas of environmental information, such as land use, fauna and flora, habitats or chemicals and the environment;

(j) Update the UN/ECE Standardization List, in particular as regards new standards for environmental protection and examine the possibility of creating a database on laws and regulations concerning energy efficiency.

* * *

72. As can be seen from the above, UN/ECE's promotion of sustainable development is taking on a wide range of forms and touches upon many sectors. Most of the chapters of Agenda 21 are covered by UN/ECE projects under the auspices of its Principal Subsidiary Bodies. On the basis of the above action plan, the UN/ECE will play the leading role attributed to it by Agenda 21 in coordinating regional and subregional activities by sectoral and other United Nations bodies and will continue to promote regional and subregional capacity building, the integration of environmental concerns in development policies, regional and subregional cooperation regarding transboundary issues related to sustainable development and assist countries in achieving sustainable development.

Notes:

1/ 54 member States as of 31 January 1994: Albania; Andorra; Armenia; Austria; Azerbaijan; Belarus; Belgium; Bosnia and Herzegovina; Bulgaria; Canada; Croatia; Cyprus; Czech Republic; Denmark; Estonia; Finland; France; Georgia; Germany; Greece; Hungary; Iceland; Ireland; Israel; Italy; Kazakhstan; Kyrgyzstan; Latvia; Liechtenstein; Lithuania; Luxembourg; Malta; Monaco; Netherlands; Norway; Poland; Portugal; Republic of Moldova; Romania; Russian Federation; San Marino; Slovakia; Slovenia; Spain; Sweden; Switzerland; The former Yugoslav Republic of Macedonia; Turkey; Turkmenistan; Ukraine; United Kingdom of Great Britain and Northern Ireland; United States of America; Uzbekistan; Yugoslavia.

2/ Undertaken in close cooperation with FAO.